

RESULT 1

BTCLAB

bontoxilysin (EC 3. 4. 24. 69) A precursor - Clostridium botulinum

N; Alternate names: botulinum neurotoxin type A

C; Species: Clostridium botulinum

C; Date: 31-Mar-1993 #sequence revision 31-Mar-1993 #text change 09-Jul-2004

C; Accession: A35294; S09492; S68220; A33401; A53884; A60025; A27000

R; Binz, T.; Kurazono, H.; Wille, M.; Frevert, J.; Vernars, K.; Niemann, H.

J. Biol. Chem. 265, 9153-9158, 1990

A; Title: The complete sequence of botulinum neurotoxin type A and comparison with other clostridial neurotoxins.

A; Reference number: A35294; MUI D: 90264400; PM D: 2160960

A; Accession: A35294

A; Molecule type: DNA

A; Residues: 1-1296 <BIN>

A; Cross-references: UNI PROT: P10845; UNI PARC: UPI 0000001386; GB: M80196; NI D: g144864;

PI DN: AAA23262.1; PI D: g144865

A; Experimental source: strain 62A, subtype A

R; Thompson, D. E.; Brehm, J. K.; Cultram, J. D.; Swinfield, T. J.; Shone, C. C.;

Atkinson, T.; Melling, J.; Minton, N. P.

Eur. J. Biochem. 189, 73-81, 1990

A; Title: The complete amino acid sequence of the Clostridium botulinum type A neurotoxin, deduced by nucleotide sequence analysis of the encoding gene.

A; Reference number: S09492; MUI D: 90235864; PM D: 2185020

A; Accession: S09492

A; Molecule type: DNA

A; Residues: 1, 'Q', 3-26, 'V', 28-1296 <THO>

A; Cross-references: UNI PARC: UPI 000003409D; EMBL: X52066; NI D: g40381; PI DN: CAA36289.1;

PI D: g40382

A; Experimental source: NCTC 2916

R; Fujita, R.; Fujinaga, Y.; Inoue, K.; Nakajima, H.; Kuron, H.; Oguma, K.

FEBS Lett. 376, 41-44, 1995

A; Title: Molecular characterization of two forms of nontoxic-nonhemagglutinin components of Clostridium botulinum type A progenitor toxins.

A; Reference number: S67988; MUI D: 96096783; PM D: 8521962

A; Accession: S68220

A; Status: preliminary

A; Molecule type: DNA

A; Residues: 1-12 <FUJ>

A; Cross-references: UNI PARC: UPI 0000173655; EMBL: D67030; DDBJ: D50421; NI D: g2160224

R; Betley, M. J.; Somers, E.; DasGupta, B. R.

Biochem Biophys. Res. Commun. 162, 1388-1395, 1989

A; Title: Characterization of botulinum type A neurotoxin gene: delineation of the N-terminal encoding region.

A; Reference number: A33401; MUI D: 89350959; PM D: 2669749

A; Accession: A33401

A; Molecule type: DNA

A; Residues: 1-35 <BET>

A; Cross-references: UNI PARC: UPI 000016EA84; GB: M27892; NI D: g144880; PI DN: AAA23269.1;

PI D: g551776

R; Gironnez, J. A.; DasGupta, B. R.

J. Protein Chem. 12, 351-363, 1993

A; Title: Botulinum type A neurotoxin digested with pepsin yields 132, 97, 72, 45, 42, and 18 kD fragments.

A; Reference number: A53884; MUI D: 94000342; PM D: 8397793

A; Accession: A53884

A; Status: preliminary

A; Molecule type: protein

A; Residues: 867-880; 1148-1217, 'Y', 1219 <GIM>

A; Cross-references: UNI PARC: UPI 00000BBB24; UNI PARC: UPI 0000173656

A; Experimental source: strain Hall

A; Note: sequence extracted from NCBI backbone (NCBI P: 139159); sequence modified after extraction from NCBI backbone

R; DasGupta, B. R.; Dekleva, M. L.
 Biochimie 72, 661-664, 1990
 A; Title: Botulinum neurotoxin type A: sequence of amino acids at the N-terminus and around the nicking site.
 A; Reference number: A60025; MUI D: 91120847; PM D: 2126206
 A; Accession: A60025
 A; Molecule type: protein
 A; Residues: 2-6; 445-453, 'X', 455-457 <DAS1>
 A; Cross-references: UNI PARC: UPI 0000173657; UNI PARC: UPI 0000173658
 R; DasGupta, B. R.; Foley, J.; Niece, R.
 Biochemistry 26, 4162, 1987
 A; Title: Partial sequence of the light chain of botulinum neurotoxin type A.
 A; Reference number: A27000
 A; Accession: A27000
 A; Molecule type: protein
 A; Residues: 2-47 <DAS2>
 A; Cross-references: UNI PARC: UPI 0000173659
 R; Binz, T.; Blasi, J.; Yamasaki, S.; Baumeister, A.; Link, E.; Suedhof, T. C.; Jahn, R.; Niemann, H.
 J. Biol. Chem. 269, 1617-1620, 1994
 A; Title: Proteolysis of SNAP-25 by types E and A botulinum neurotoxins.
 A; Reference number: A49708; MUI D: 94124495; PM D: 8294407
 A; Contents: annotation
 C; Comment: Botulinum neurotoxins inhibit neurotransmitter release from cholinergic synapses. This toxin is activated by cleavage into two chains linked by a disulfide bond.
 C; Genetics:
 A; Gene: atx; bot A
 C; Function:
 A; Description: catalyzes hydrolysis of an Asn-Arg peptide bond in synaptosomal-associated 25K protein (SNAP-25)
 C; Superfamily: tetanus toxin
 C; Keywords: disulfide bond; hydrolase; metalloproteinase; neurotoxin; transmembrane protein; zinc
 F; 2-444/ Product: bontoxilysin A light chain #status experimental <LGHT>
 F; 445-1296/ Product: bontoxilysin A heavy chain #status experimental <HVV>
 F; 223, 227/ Binding site: zinc (Hs) #status predicted
 F; 224/ Active site: Gu #status predicted

Query Match 98.4% Score 4470.5; DB 1; Length 1296;
 Best Local Similarity 99.3% Pred. No. 3.6e-218;
 Matches 865; Conservative 0; Mismatches 3; Indels 3; Gaps 1;

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Qy      1 MEFVNKQFNYKDPVNGVDI AYI KI PNAGQMPVKAFKI HNKI VWI PERDTFTNPEEGDLN 60
Db      1 MPFVNKQFNYKDPVNGVDI AYI KI PNAGQMPVKAFKI HNKI VWI PERDTFTNPEEGDLN 60

Qy     61 PPPEAKQMPVSYDYDSTYLDNEKDNYLKGVTKLFERI YSTDGLHMLTSLTSL VRG PFVGG 120
Db     61 PPPEAKQMPVSYDYDSTYLDNEKDNYLKGVTKLFERI YSTDGLHMLTSLTSL VRG PFVGG 120

Qy    121 STI DTELKVI DTNCI NWI QPDGSYRSEELNLVI I GPSADI I QFECKSFGEVLNLTRNGY 180
Db    121 STI DTELKVI DTNCI NWI QPDGSYRSEELNLVI I GPSADI I QFECKSFGEVLNLTRNGY 180

Qy    181 GSTQYI RFSPDFTFGFEESLEVDTNPLL GAGKFATDPAVTLAHLI HAGHRLYGI AI NPN 240
Db    181 GSTQYI RFSPDFTFGFEESLEVDTNPLL GAGKFATDPAVTLAHLI HAGHRLYGI AI NPN 240

Qy    241 RVFKVNTNAYYEMSGLEVSFEELRTFGHDAKFI DLSGENEFLYYNKFQDI ASTLNKA 300
Db    241 RVFKVNTNAYYEMSGLEVSFEELRTFGHDAKFI DLSGENEFLYYNKFQDI ASTLNKA 300

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Qy 301 KSI VGTTASLQYMKNVFKEKYLLEDTSKGFSVDKLFKDKLYKMLTEI YTEDNFVKFFKV 360
Db 301 KSI VGTTASLQYMKNVFKEKYLLEDTSKGFSVDKLFKDKLYKMLTEI YTEDNFVKFFKV 360

Qy 361 LNPKYTLNFDKAVFKI NI VPKVNYTI YDGFNLNNTNLAAFNNGQNTET NNNMFTKLKNFT 420
Db 361 LNPKYTLNFDKAVFKI NI VPKVNYTI YDGFNLNNTNLAAFNNGQNTET NNNMFTKLKNFT 420

Qy 421 GLFEFYKLLCVRGI TSKTKSLDDDDKGYNKALNDLCI KVNNDLFFSPSEDNFTNDLNK 480
Db 421 GLFEFYKLLCVRGI TSKTKSL---DKGYNKALNDLCI KVNNDLFFSPSEDNFTNDLNK 477

Qy 481 GEEI TSDTNI EAAEENI SLDLI QQYLTFFNFDNEPENI SI ENLSSDI GQLELMPNI ERF 540
Db 478 GEEI TSDTNI EAAEENI SLDLI QQYLTFFNFDNEPENI SI ENLSSDI GQLELMPNI ERF 537

Qy 541 PNGKKYELDKYTMFHYLRACEFEHGSRI ALTNSVNEALLNPSRVYTFSSDYVKKNKA 600
Db 538 PNGKKYELDKYTMFHYLRACEFEHGSRI ALTNSVNEALLNPSRVYTFSSDYVKKNKA 597

Qy 601 TEAAMFLQWEQLVYDFTDETSEVSTTDKI ADI TI I I PYI GPALNI GNMLYKDDFVGALI 660
Db 598 TEAAMFLQWEQLVYDFTDETSEVSTTDKI ADI TI I I PYI GPALNI GNMLYKDDFVGALI 657

Qy 661 FSGAVI LLEFI PEI AI PVLGTFALVSYI ANKVLTVQTI DNALSKRNEKWDVEVYKYI VTNW 720
Db 658 FSGAVI LLEFI PEI AI PVLGTFALVSYI ANKVLTVQTI DNALSKRNEKWDVEVYKYI VTNW 717

Qy 721 LAKVNTQI DLI RKKVKEALENQAETKAI I NYQYNQYTEEEKNNI NFNI DDLSSKLNESI 780
Db 718 LAKVNTQI DLI RKKVKEALENQAETKAI I NYQYNQYTEEEKNNI NFNI DDLSSKLNESI 777

Qy 781 NKAM NI NKFLNCCSVSYLNMNM PYGVKRLDFDASLKDALLKYI YDNRGTLI GQVDRIL 840
Db 778 NKAM NI NKFLNCCSVSYLNMNM PYGVKRLDFDASLKDALLKYI YDNRGTLI GQVDRIL 837

Qy 841 KDKVNNLTSTDI PFQLSKYVDNQRLSTEE 871
Db 838 KDKVNNLTSTDI PFQLSKYVDNQRLSTFTE 868